

Notice of Allowability U.S. PATENT AND TRADEMARK OFFICE DEPARTMENT OF COMMERCE WASHINGTON, D.C. 20503	Application No.	Applicant(s)	
	10/656,592	ILIFF, EDWIN C.	
	Examiner	Art Unit	
	Robert L. Nasser	3735	

The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to phone communication of 5/24/2007.
2. ☒ The allowed claim(s) is/are 1-44.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f)
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>See Continuation Sheet</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 5/18/07, 4/27/07, 4/27/07, 3/29/07.

4/10/03

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An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Raimond Salenieks on May 24, 2007.

Approval has been given by Mr. Salenieks to charge deposit account 11-1410 – for two additional dependent claims above 20.

In the specification:

On page 1, line 7, after 2001, the following has been added –now US patent 6641532 --.

In the claims:

The claims have been rewritten as follows:

Claim 1. (Currently amended) A computerized medical diagnostic system, comprising:
a storage having a list of diseases, each disease associated with a list of symptoms, and each symptom associated with a list of questions; and
a storage having a script engine that operates on a computer and is configured to:
repetitively ask questions selected from the lists of questions to elicit responses, the responses establishing symptoms selected from the lists of symptoms, each established symptom contributing a weight to an accumulated total weight for a disease selected from the list of diseases, and
determine whether the accumulated total weight for the selected disease reaches or passes a threshold so as to declare a diagnosis.

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Claim 2. (Original) The system defined in claim 1 wherein the symptom is established based on a presence or absence of one or more other symptoms.

Claim 3. (Original) The system defined in Claim 1, wherein a presence of a selected set of symptoms adds additional weight to the accumulated total weight of at least one of the diseases.

Claim 4. (Original) The system defined in Claim 1, wherein a symptom at a first selected time during operation of the diagnostic system is weighted differently than the symptom at a second selected time.

Claim 5. (Original) The system defined in Claim 1, wherein the weight of a symptom established at a first severity is different than the weight of the symptom established at a second severity.

Claim 6. (Original) The system defined in Claim 1, wherein a selected set of symptoms that occur in a specified sequence over time lends a different accumulated weight to the total weight than an accumulation of the individual weights of the selected set of symptoms that do not occur in the specified sequence.

Claim 7. (Original) The system defined in Claim 1, wherein a sequence of an onset or ending of a selected set of symptoms lends a different accumulated weight to the total weight than an accumulation of individual weights of the selected symptoms alone.

Claim 8. (Original) The system defined in Claim 1, wherein the disease is ruled-in for further diagnostic inquiry based on the accumulated total weight.

Claim 9. (Original) The system defined in Claim 1, wherein the disease is ruled-out for further diagnostic inquiry based on the accumulated total weight.

Claim 10. (Original) The system defined in Claim 1, wherein questions for diseases deemed urgent are asked before questions for non-urgent diseases.

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Claim 11. (Original) The system defined in Claim 1, wherein the script engine is further configured to determine whether the accumulated total weight for a disease reaches or passes a rule-out threshold so as to eliminate a possible diagnosis.

Claim 12. (Original) The system defined in Claim 8, wherein a degree of certainty of ruling-in the disease is provided.

Claim 13. (Original) The system defined in Claim 9, wherein a degree of certainty of ruling-out the disease is provided.

Claim 14. (Original) The system defined in Claim 1, wherein a plurality of diagnoses, each diagnosis having a degree of certainty, are accumulated into a patient specific differential diagnosis list.

Claim 15. (Currently amended) The system defined in Claim 1, wherein the script engine is configured to repetitively ask questions selected from two or more lists of questions to elicit responses from a patient.

Claim 16. (Currently amended) A computerized medical diagnostic method, comprising:
providing a list of diseases, each disease associated with a list of symptoms, and each symptom associated with a list of questions; and
executing a script engine on a computer comprising:
repetitively asking questions selected from the lists of questions to elicit responses;
establishing symptoms selected from the lists of symptoms based on the responses;
contributing a weight to an accumulated total weight for a disease selected from the list of diseases based on each established symptom; and
determining whether the accumulated total weight for the selected disease reaches or passes a threshold so as to declare a diagnosis.

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Claim 17. (Original) The method defined in Claim 16, wherein establishing symptoms is based on a presence or absence of one or more other symptoms.

Claim 18. (Original) The method defined in Claim 16, additionally comprising adding additional weight to the accumulated total weight of at least one of the diseases based on a presence of a selected set of symptoms.

Claim 19. (Original) The method defined in Claim 16, wherein contributing a weight comprises weighting a symptom at a first selected time during execution of the script engine differently than the symptom at a second selected time.

Claim 20. (Original) The method defined in Claim 16, wherein contributing a weight comprises weighting a symptom established at a first severity differently than the weight of the symptom established at a second severity.

Claim 21. (Original) The method defined in Claim 16, additionally comprising contributing an accumulated weight to the total weight for a selected set of symptoms that occur in a specified sequence over time that is different than an accumulation of the individual weights of the selected set of symptoms that do not occur in the specified sequence.

Claim 22. (Original) The method defined in Claim 16, additionally comprising contributing an accumulated weight to the total weight for a sequence of an onset or ending of a selected set of symptoms that is different than an accumulation of individual weights of the selected symptoms alone.

Claim 23. (Original) The method defined in Claim 16, additionally comprising ruling-in the disease for further diagnostic inquiry based on the accumulated total weight.

Claim 24. (Original) The method defined in Claim 16, additionally comprising ruling-out the disease for further diagnostic inquiry based on the accumulated total weight.

Claim 25. (Original) The method defined in Claim 16, wherein repetitively asking questions comprises asking questions for diseases deemed urgent before questions for non-urgent diseases.

Claim 26. (Original) The method defined in Claim 16, additionally comprising determining whether the accumulated total weight for a disease reaches or passes a rule-out threshold so as to eliminate a possible diagnosis.

Claim 27. (Original) The method defined in Claim 23, additionally comprising providing a degree of certainty of ruling-in the disease.

Claim 28. (Original) The method defined in Claim 24, additionally comprising providing a degree of certainty of ruling-out the disease.

Claim 29. (Original) The method defined in Claim 16, additionally comprising accumulating a plurality of diagnoses, each diagnosis having a degree of certainty, into a patient specific differential diagnosis list.

Claim 30. (Original) The method defined in Claim 16, wherein repetitively asking questions to elicit responses comprises repetitively asking questions to elicit responses from a patient.

Claim 31. (Currently amended) A computer usable medium having computer readable program code embodied therein for performing a computerized process used in medical diagnosis, the computer readable code comprising instructions for:

- providing a list of diseases, each disease associated with a list of symptoms, and each symptom associated with a list of questions; and

- executing a script engine comprising:

- repetitively asking questions selected from the lists of questions to elicit responses from a patient;

- establishing symptoms selected from the lists of symptoms based on the responses;

contributing a weight to an accumulated total weight for a disease selected from the list of diseases based on each established symptom; and
determining whether the accumulated total weight for the selected disease reaches or passes a threshold so as to declare a diagnosis.

Claim 32. (Original) The computer usable medium of Claim 32. additionally comprising instructions for accumulating a plurality of diagnoses, each diagnosis having a degree of certainty, into a patient specific differential diagnosis list.

Claim 33. (Currently amended) A computerized medical diagnostic system, comprising:
a storage having a list of diseases, each disease associated with a list of symptoms, and each symptom associated with a list of questions; and
a storage having a script engine that operates on a computer and is configured to:
repetitively ask questions selected from the lists of questions to elicit responses from a patient, the responses establishing symptoms selected from the lists of symptoms, each established symptom contributing a weight to an accumulated total weight for a disease selected from the list of diseases, and
determine whether the accumulated total weight for the selected disease reaches or passes a threshold so as to declare a diagnosis.

Claim 34. (Currently amended) The system defined in Claim 1, wherein at least a portion of the symptoms in the lists of symptoms are associated with a plurality of questions to be asked, and wherein weights are assigned to possible responses of the plurality of questions.

Claim 35. (Previously presented) The system defined in Claim 34, wherein after the plurality of questions are answered, a symptom score is totaled of the weights corresponding to the responses.

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Claim 36. (Previously presented) The system defined in Claim 35, wherein the symptom score is compared to a threshold for the symptom, and the symptom is established if the symptom score reaches or passes the symptom threshold.

Claim 37. (Previously presented) The system defined in Claim 36, wherein the weight of the established symptom is associated with the symptom score.

Claim 38. (Previously presented) The system defined in Claim 34, wherein at least some of the weights assigned to the possible responses of the plurality of questions have different values.

Claim 39. (Previously presented) The system defined in Claim 1, wherein the weight contributed by an established symptom is a negative integer.

Claim 40. (Previously presented) The method defined in Claim 16, wherein the weight contributed by an established symptom is a negative integer.

Claim 41. (Previously presented) The computer usable medium defined in Claim 31, wherein the weight contributed by an established symptom is a negative integer.

Claim 42. (Previously presented) The system defined in Claim 33, wherein the weight contributed by an established symptom is a negative integer.

Claim 43. (New) The system defined in Claim 1, wherein the storage having the list of diseases and the storage having the script engine are the same device.

Claim 44. (New) The system defined in Claim 33, wherein the storage having the list of diseases and the storage having the script engine are the same device. –

Claim 1 was amended to make clear that the claim had software embodied on a computer readable memory, and not software per se.

Claims 1, 16, 31, and 33 were amended to clarify that the questions asked and symptoms elicited by the script engine were the same ones that were in the list of diseases and associated symptoms and questions.

The following is an examiner's statement of reasons for allowance: None of the art determines a diagnosis based on whether accumulated weights for a disease exceed a threshold, as claimed. The Japanese Abstract publication 08164127 seems to ask a series of questions and produce a score in certain categories, but does not diagnose a disease based on whether the score exceeds a threshold.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert L. Nasser whose telephone number is 571 272-4731. The examiner can normally be reached on m-f 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert L. Nasser
Primary Examiner
Art Unit 3735

RLN
May 24, 2007



ROBERT L. NASSER
PRIMARY EXAMINER